Technical Support Document
For
Air Quality Permit No. 35118
Nestle Purina PetCare Company – Flagstaff Pet Food Manufacturing Plant

This permit is a significant permit revision of Air Quality Class II Permit No. 1001585 issued on September 23, 2002, to Nestle Purina PetCare Company, the Permittee, for operation of its Flagstaff pet food manufacturing plant located at 4700 E. Nestle Purina Ave., Flagstaff, Arizona 86004. The current permit limits Nestle to combust only natural gas or low sulfur residual fuel oil in the two boilers, EP-10 and 11, and low sulfur diesel fuel or low sulfur residual fuel oil in the two internal combustion engines. Due to a tight market condition with supply insufficiency of low sulfur residual fuel oil, Nestle submitted to the Department, an application on January 3, 2005, for a fuel oil variance to include use of the high sulfur oil. This permit revision incorporates the fuel usage variance by authorizing Nestle to burn the high sulfur oil that contains sulfur up to 1.2% by weight. Arizona rules pertaining to the boilers at the Nestle facility, namely, Arizona Administrative Code R18-2-724, explicitly prohibit the source from using high sulfur oil until the applicant can demonstrate to the satisfaction of the Director both that sufficient quantities of low sulfur oil are not available for use and that it has adequate facilities and contingency plans to ensure that the sulfur dioxide ambient air quality standards set forth in R18-2-202 will not be violated. Nestle has demonstrated through the application process that sufficient quantities of low sulfur oil may periodically be unavailable for use (please see e-mail correspondence from Gopi Sandhu to Henry Darwin dated December 9, 2004, and mail correspondence from Jennifer Costanza to Joseph Mikitish dated December 1, 2005, in addition to the application). Modeling was performed to assess the dispersion impacts with the use of high sulfur oil, showing compliance with the sulfur dioxide ambient air quality standards by a large margin.

Among other things, the permit revision requires Nestle to conduct monthly market surveys for availability of low sulfur oil while burning high sulfur oil and submit to the Department monthly reports detailing its efforts to obtain low sulfur oil. When the surveys demonstrate that low sulfur fuel oil becomes available, Nestle is required to immediately switch back to the use of the low sulfur oil.

The permit revision also requires that the source does not emit more than 0.189 lbs of oxides of sulfur per gallon of high sulfur oil fired in each boiler, nor burns more fuel oil and natural gas in the two boilers combined in any rolling twelve-month period than the amount that is stipulated by the following equation:

$$\frac{159 \times S \times FO + 0.6 \times NG}{2000} \leq 99 \text{ tons of sulfur dioxide per year} \qquad \text{(Equation 1)}$$

Where
S = Weighted average sulfur content in weight % of all fuel oil used during the preceding 12-month period multiplied by 100
FO = Total fuel oil usage for both boilers during the preceding 12-month period in 1000s of gallons
NG = Total natural gas usage for both boilers during the preceding 12-month period in million cubic feet (Mmcf)

The conditions are essential to ensure that the annual sulfur dioxide impact from burning high sulfur oil will remain unchanged as compared to burning low sulfur oil, and that sulfur dioxide emissions from the facility will stay below the major source threshold of 100 tons per year. It is noted that, to calculate sulfur dioxide emissions, the equation uses the multiplier 159 instead of 157 given under AP-42, another safety factor to ensure the synthetic minor status of the source.

The permit revision also limits (1) the simultaneous hours of fuel oil burning in the two boilers combined to below 2065 hours per year and (2) the internal combustion engines to only burn diesel that contains sulfur no greater than 500 ppm (0.05%) by weight. These conditions will further ensure that the source continues to meet the SO_2 ambient air quality standards and stay below the SO_2 major source threshold.

The permit revision also authorizes Nestle to burn “on-specification” used oil that meets the following conditions:

(1) The used oil fuel must be analyzed and certified by the marketer (oil supplier) to be "on specification" according to the definition in A.R.S. §49-801;
(2) The flash point shall be at least 100°F; and
(3) The contaminants must not exceed the following levels (in parts per million by weight):

Arsenic	5 ppm
Cadmium	2 ppm
Chromium	10 ppm
Lead	100 ppm
PCBs	2 ppm

When burning “on specification” used oil, Nestle is required to maintain, on site, copies of the fuel analysis supplied by the marketer for each batch of "on specification" used oil fuel, and responsible for ensuring that the results of the analyses confirm that the contaminant levels specified above are not exceeded.